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STATE OF UTAH
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May 24, 1978

Mr. Jerry Glazier
5-M, Inc.
P.O. Box 752
Hurricane, UT. 84737

Dear Mr. Glazier:

1. Thank you for the informative tour of your operations. Based on that visit and a close review of the plan we have the following questions and comments.
2. The generic strip mine plan submitted by you is good. We would like to know if the entire pit area will be open at any one time or will it be constantly reclaimed behind the active pit? If a constant haul-back method is used how will the underground portal locations be prepared. What size pit area would have to be left unreclaimed for any one portal site and how many such portal sites will there be? If the pit is to continue down-dip past the alluvium surface how thick will the alluvium overburden be in the pit wall? The mine maps shows large areas to be stripped; will all of these areas be stripped in the same manner and what will be the relative staging of this work?
3. Where will spoil from the underground workings go? What total area would this spoil disposal require?
4. Will any of the existing portals, dumps and shafts be used?
5. The uranium beneficiation process will require NRC approval in addition to ours. For this reason we feel that you should design it so it is separate from the silver/copper beneficiation system. The hydrologic design, operation, and reclamation of the uranium system will be more detailed and much more conservative than what will be required for the rest. If you can split the two systems apart, we will need to know the details of locations and areas involved.
6. The heap leach ponds and the tailings dam will completely block storm drainage out of the canyon. We are presently checking the volumes and runoff figures for a number of design storms. Will a lot of untreated runoff volume in any of the leach systems cause operational problems such as clogging permeability of the ore, precipitation of undesirable mineral matter in the leach stream, excessive leachate dilution, etc.

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7. The location design, and reclamation of the uranium leach ponds and tailings must be such that all Division of Health and NRC requirements, as applicable, will be satisfied. This office will assume that the cover requirements and hydrologic parameters for this portion of the operation will be the same as previous nuclear facilities approved by us.
8. We would like to know the chemistry of the leachate and that of any bleed-off if any. What will be the composition and chemistry of the tailings?
9. Monitoring of the probable airborne paths and possible leaked leachate will be needed for the uranium system especially and would be advisable for the silver and copper system.
10. You should consider the future uses of the land to possibly include high value uses such as residential or light industry.
11. The drainage of the canyon should be re-established after regrading and and covering the heaps. What are your plans in this regard?
12. You should consider the use of much in reclaiming some portions of the operation.
13. We will prescribe one or more seed mixtures for you to plant on test plots to more specifically design your revegetation plan.
14. As we discussed in the field, you should plan to terrace the footwall of your pits.
15. We understand that you are doing some work backfilling old shafts and portals. We applaud these efforts.
16. The above listed questions might be easier to handle if you can provide us with details as to a sequentially phased operation which we might approve in its entirety but base the surety on one phase at a time.
17. We will get back to you with our hydrologic results.

Sincerely,

Brian W. Buck

BRIAN W. BUCK
ENGINEERING GEOLOGIST